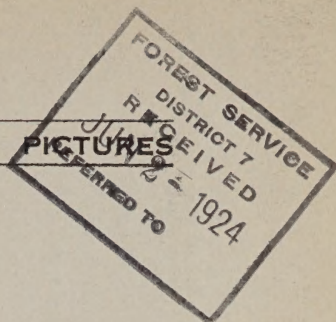


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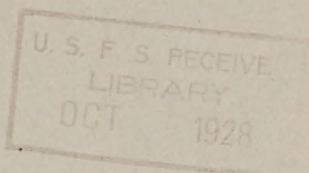
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FOREST PRODUCTS RESEARCH IN PICTURES



NO. 33

FINDING THE REASON FOR TREELESS
OPENINGS ON SOUTHWEST FORESTS



SOUTHWESTERN FOREST EXPERIMENT STATION
U. S. FOREST SERVICE
FLAGSTAFF, ARIZONA

"Why is it that trees will not grow on the big flat grassy openings found in the midst of excellent pine forests in the Southwestern United States? Why should seedlings fail to start on these areas while on adjoining land they spring up by the thousands?" These queries have interested people in the Southwest for many years. Believing that an understanding of the reason for the openings might lead to a solution of the problem of establishing young tree growth on adjoining logged-off lands, the U. S. Forest Service made a detailed study of soil and climate on the "park" areas.

The photograph shows a field station of the Southwestern Forest Experiment Station on a typical forest "park" near Flagstaff, Arizona. Snow gauges, minimum and maximum recording thermometers, a rain gauge, and a wind gauge are seen in the foreground.

Many "openings" like the one shown here are on land filled in by the erosion from surrounding hills in bygone ages. Others are filled-in lake beds. It was found that the fine alluvial soil remains saturated with water until late in the spring, causing the seed to rot before germinating, or the seedlings to "drown" because of lack of air in the soil. Should any seed get started, it perishes later in the summer when the soil bakes exceedingly hard and there is no available moisture for the roots. The open areas are exposed to the full sweep of the wind, the high evaporation and severe summer temperatures are greater than in the forest, and as these areas are also frost pockets the seedlings have no chance for survival.

Climate studies and attempts to germinate seeds on experimental plots have shown that it is impractical to attempt to grow trees from seed on the "park" areas, and that in addition to seed trees considerable cover must be left on logged-off areas in the same region to permit seedlings to get a start.

(Photograph by U. S. Forest Service)

